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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/500,350	02/09/2005	Sergey Vasilevich Marutian	P06835US00	2639
22885 7590 02/23/2010 MCKEE, VOORHEES & SEASE, P.L.C. 801 GRAND AVENUE SUITE 3200 DES MOINES, IA 50309-2721				
EXAMINER BAREFORD, KATHERINE A				
ART UNIT 1792		PAPER NUMBER		
NOTIFICATION DATE 02/23/2010		DELIVERY MODE ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patatty@ipmvs.com

# Office Action Summary

**Application No.**

10/500,350

**Applicant(s)**

MARUTIAN ET AL.

**Examiner**

Katherine A. Bareford

**Art Unit**

1792

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 November 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 6 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/CD)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. The amendment of November 16, 2009 has been received and entered. With the entry of the amendment, claims 1-5 have been canceled and new claim 6 is pending for examination.

#### ***Claim Objections***

2. Claim 6 is objected to because of the following informalities: in claim 6, line 3, "to product surface" should be "a product surface of the product" for proper grammar and connection to the referred to cast iron and steel products.

Appropriate correction is required.

#### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claim 6 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

**Claim 6, last two lines**, provides “the coated product being capable of winding on a 10 mm mandrel without breaking the alloy coating”. The specification describes testing “plasticity of the coatings” by “testing the pattern on bending around the cylindrical mandrel, while wending on which the coating on the pattern doesn’t break” (page 3, first paragraph), with description of “Minimum diameter of mandrel, mm” in Table 1, which appears to indicate that “10 mm” refers to “diameter of mandrel”. Thus “bending” and “wending” are described but not “winding”. The Examiner takes Official Notice that “wending” means “directing the course of travel” and is thus not the same as “winding” meaning “to wrap around something”. As a result “winding” is not supported by the disclosure as filed and the claim contains new matter.

5. Claim 6 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

**Claim 6, last two lines**, provides “the coated product being capable of winding on a 10 mm mandrel without breaking the alloy coating”. The specification describes testing “plasticity of the coatings” by “testing the pattern on bending around the cylindrical mandrel, while wending on which the coating on the pattern doesn’t break” (page 3, first paragraph), with description of “Minimum diameter of mandrel, mm” in Table 1, which appears to indicate that “10 mm” refers to “diameter of mandrel”. This

simply does not provide an adequate description of how the winding without breaking the alloy coating works such that this test can be reproduced, understood or compared, and thus one of ordinary skill in the art would not be able to make and/or use the invention. First, it is unclear what is required by the “winding” – by what degrees is the “coated product” is wound (wrapped around) around the mandrel, such as, must it go 100%, 10 degrees, 90 degrees, etc. It is also unclear what thickness the substrate is or is not and what thickness the coating is or is not, which would clearly affect how much winding and what effect could occur. As well, it is not clear what the mandrel is made from. All of those features would affect the resulting results from winding the coated product around a mandrel. Moreover, if this is a known standardized test, such as an ASTM test, it is not clear from the claim or disclosure what this test would be. The disclosure has not referred to a specific test, but rather provided a general description of a testing with bending.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claim 6 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

**Claim 6, last two lines**, provides “the coated product being capable of winding on a 10 mm mandrel without breaking the alloy coating”. The specification describes testing “plasticity of the coatings” by “testing the pattern on bending around the cylindrical mandrel, while winding on which the coating on the pattern doesn’t break” (page 3, first paragraph), with description of “Minimum diameter of mandrel, mm” in Table 1, which appears to indicate that “10 mm” refers to “diameter of mandrel”. This simply does not provide an adequate description of how the winding without breaking the alloy coating works such that this test can be reproduced, understood or compared. First, it is unclear what is required by the “winding” — by what degrees is the “coated product” is wound (wrapped around) around the mandrel, such as, must it go 100%, 10 degrees, 90 degrees, etc. It is also unclear what thickness the substrate is or is not and what thickness the coating is or is not, which would clearly affect how much winding and what effect could occur. As well, it is not clear what the mandrel is made from. All of those features would affect the resulting results from winding the coated product around a mandrel. Moreover, if this is a known standardized test, such as an ASTM test, it is not clear from the claim or disclosure what this test would be. The disclosure has not referred to a specific test, but rather provided a general description of a testing with bending.

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rallis (US 4655852) in view of Japan 50-005213 (hereinafter '213).

Rallis teaches a method of applying aluminum alloy coatings on steel products. *Column 2, lines 1-10, 34-50 and 64-68.* Rallis teaches that the product is first prepared for coating. *Column 2, lines 10-40 (heat treating) and column 6, lines 40-60 (heat treating and cleaning before coating).* The cleaning preparation can include grit blasting (which would be using a jet abrasive) the product. *Column 6, lines 40-60.* Rallis then teaches that the

prepared product is then plunged into a hot dip aluminum alloy melt bath to coat the product with the aluminum alloy. *Column 6, lines 55-68, for example and column 2, lines 35-50 and 64-68.* The temperature of the aluminum bath can be 1000 to below 1341 degrees F (approximately 538 to 727 degrees C). *Column 2, lines 34-40.* Rallis further teaches that the bath can include aluminum alloyed with zinc, silicon, magnesium and tin materials. *Column 2, line 64 through column 3, line 5 (from the selection from the list of materials provided).* The Examiner understands Rallis to perform the application of the aluminum coating without flux, as the process of Rallis has no teaching of applying flux (*see Examples I and II, for instance, columns 6 and 7*). Applicant has now claimed that the process is "consisting of" the steps of "preparing the product surface by jet-abrasion; and then plunging the prepared product into an aluminum melt . . ." (claim 6). The Examiner understands this to mean that a provided produce must be prepared by jet-abrasion and then plunged into the aluminum melt without any intervening steps. Rallis would at least suggest this sequence because it provides a heat treated product (note for example column 7, lines 5-12), and then degreasing and grit blasting followed by dipping into a molten aluminum bath (column 7, lines 10-15). This would at least suggest that grit blasting (jet abrasion) can be followed by plunging with no intervening steps because (1) grit blasting is the last step taught before plunging, or (2) since "degreasing and grit blasting" are described as occurring before plunging then it would be expected that either degreasing or grit blasting could occur as the final step before plunging with an expectation of similar results, or (3) since no particular limitation is



provided on the "preparing to product surface by jet-abrasion" the "jet-abrasion process" could be considered as reading on the combination of "degreasing and grit blasting".

Rallis thus provides all the features of this claim except (1) the precise temperature of the melt bath and the precise amounts of zinc, silicon, magnesium, and tin to be used in the aluminum melt, (2) the mandrel winding features.

However, '213 teaches that a desirable aluminum alloy composition for improved corrosion resistance includes, by weight, 2-18 % silicon, 2-8 % zinc, 0-2% magnesium and 0.1-1.5% Sn. See the Abstract, and page 2 of the translation. The Examiner notes that while the English language abstract refers to 0.5% copper in the alloy, this is a typographical error, and that '213 teaches 0-5% copper (which therefore means that no copper can be used), (as shown on page 61, 1<sup>st</sup> column in Japanese; page 2 of the translation) where " . . . Si 2-18%, Zn 2-8%, Cu 0-5%, Mg 0-2 % , Sn 0.1-15% . . . " is described, and also notes in the example in the abstract where 0.02 % copper is used which is below 0.5 % copper .

It would have been obvious to one of ordinary skill in the art at the time the invention was made to (1) modify Rallis to optimize the temperature of the melt bath for the specific aluminum alloy used given that Rallis teaches a temperature range of approximately 538 to 727 degrees C, and where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists. In re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); In re Woodruff, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). Furthermore, it would have been obvious to modify

Rallis to perform the hot dip coating of the aluminum alloy using an alloy with the components and range taught by '213 with an expectation of providing a desirably corrosion resistant plated article, because Rallis teaches a desirable method for providing hot dip coating of an aluminum alloy on a steel product using an aluminum alloy that can contain aluminum, zinc, silicon, magnesium and tin and '213 teaches a desirable aluminum alloy containing aluminum, zinc, silicon, magnesium and tin for improved corrosion protection. It would further have been obvious to optimize within the taught range of '213 to determine the optimum or workable ranges by routine experimentation. See *In re Aller*, 200 F.2d 454, 105 USPQ 233 (CCPA 1955). The Examiner understands the ranges given in '213 to be in weight percent as the description is in the conventional format for describing weight percent of alloys and as page 2 of the translation indicates that the percentages are in weight percent. (2) As to the resulting coating meeting the claimed mandrel winding features, the Examiner notes the confusion as to what is actually required by the mandrel winding features as discussed in the 35 USC 112, first and second paragraph rejections above. However, it is the Examiner's position that the coating method provided by Rallis in view of '213 would provide a coating that meets the claimed mandrel winding features, because Rallis in view of '213 provides a coated article with an aluminum alloy of the percentage requirements of zinc, silicon, magnesium and tin, which is what appears to be required to meet the mandrel winding features as described by applicant in the specification, and the fact that applicant has recognized another advantage which would flow naturally

from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985). The Examiner also notes MPEP 2112, as noting that “[T]he discovery of a previously unappreciated property of a prior art composition, or of a scientific explanation for the prior art’s functioning, does not render the old composition patentably new to the discoverer.” *Atlas Powder Co. v. Ireco Inc.*, 190 F.3d 1342, 1347, 51 USPQ2d 1943, 1947 (Fed. Cir. 1999).

### *Response to Arguments*

11. Applicant’s arguments filed November 16, 2009 have been fully considered but they are not persuasive.

(A) The 35 USC 112, first paragraph, written description rejection

Applicant argues that the 35 USC 112 rejections are moot as new claim 6 removes the rejected features. The Examiner has reviewed these arguments, however, new claim 6 has new matter issues related to the use of the term “winding” as discussed in the rejection above.

(B) The 35 USC 112, first paragraph, Enablement rejection

Applicant argues that the 35 USC 112 rejections are moot as new claim 6 removes the rejected features. The Examiner has reviewed these arguments, however, new claim 6 has enablement issues related to the coated product being capable of winding as claimed as discussed in the rejection above.

(C) The 35 USC 112, second paragraph rejections

Applicant argues that the 35 USC 112 rejections are moot as new claim 6 removes the rejected features. The Examiner has reviewed these arguments, however, new claim 6 has issues related to the coated product being capable of winding as claimed as discussed in the rejection above.

(D) The 35 USC 103(a) rejection using Rallis in view of Japan '213

Applicant argues that there is no evidence that the Japan '213 alloy provides better corrosion resistance than the alloy of Rallis, which is already taught as having "enhanced corrosion resistance", with applicant arguing that absence an improvement KSR indicates that there is no reason to modify one reference in view of another. Applicant further argues that Rallis heats the coated product to inter-diffuse the aluminum and steel and it is unknown whether such inter-diffusion can or will occur if the aluminum alloy is changed from Rallis to '213. Applicant further argues that there is no evidence that Rallis in view of '213 will meet the limitation as to the winding features, as it is not necessarily inherent as Rallis does not have the precise temperature of claim 6. Applicant further argues that they have attached an English Translation of a Russian standard for testing wire by wrapping on a mandrel, showing that this step is well known by those skilled in the art, but does not lead to a conclusion of inherency. Applicant further argues that claim 6 has been narrowed by using the term "consisting of" and there are no additional steps, while Rallis dips or sprays the product with the

aluminum alloy and then heats the coated product to interdiffuse aluminum metal and the iron in the steel matrix.

The Examiner has reviewed these arguments, however, the rejection is maintained. As to the '213 alloy providing better corrosion results or not, the Examiner notes that Rallis already provides the general teaching that the aluminum melt can include alloys materials such as Zn, Si, Mg and Sn (with no limitations on amount of each). '213 shows a desirable alloy using those materials, and thus the modification of Rallis is not to use a different alloy combination than that encompassed by Rallis, but to select a specific alloy combination from the possible alloy combinations encompassed by Rallis. One of ordinary skill in the art would be suggested to select materials known to have desirable corrosion resistance from possible coating materials that can be used when performing the process of Rallis where enhanced corrosion resistance is desired. KSR does not limit obviousness rationales to those that specifically show improvement, as achieving predictable results can also be a proper rationale (see MPEP 2143 rationales (A) and (B) for example). As to Rallis heating the coated product to inter-diffuse the aluminum and steel, it would be expected that the claimed inter-diffusing would occur since the alloy of '213 is simply a specific alloy from the range of possible alloy combinations already taught as usable by Rallis as noted above. As to meeting the winding limitations, the Examiner has provided why, from the combination of references, it would have been obvious to provide both the jet-abrasion, the melt temperature and the claimed alloy combination. It is the Examiner's position that when

using all these suggested features that that the resulting product would meet the winding limitations, because all of the features provided by applicant for a product that meets such winding limitations is provided. As to the provided translation of a Russian wire testing standard, applicant has provided no showing that one of ordinary skill in the art would understand from a reading of the present application that such a testing system is what is understood. Furthermore, this would not affect the 35 USC 103 rejections because as noted above, the all the coating features provided by applicant for providing a product meeting the winding limitations would be provided by the combination of Rallis and '213. As to the use of the term "consisting of", the Examiner has noted in the rejection above, why Rallis would provide the suggestion of providing specifically jet abrasion followed by plunging with no intermediate steps. The claims as worded do not prevent pretreatment steps before the jet abrasion (as such a pretreated product would be the product surface to be prepared) or post treatment steps beyond the plunging (as a coated product is produced before any post treatment steps). Therefore, even if heating occurs after the plunging/alloy coating step, it is not prevented by the claim as worded. Also, the Examiner notes that this heating can be as part of the aluminum plunging (using the temperature to which the aluminum bath is heated) (see Examples I, II, column 8, lines 40-50, for example).

### *Conclusion*

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Katherine A. Bareford whose telephone number is (571) 272-1413. The examiner can normally be reached on M-F(6:00-3:30) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy H. Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Katherine A. Bareford/  
Primary Examiner, Art Unit 1792